

**WHAT WE CLAIM IS**

1. A pressure regulating device for use with a breathing assistance apparatus which conveys inhalatory gases to, and removes exhalatory gases from a patient requiring breathing assistance, comprising:

10 a container which in use includes a body of liquid,  
terminal conduit means including proximate and distal ends, said proximate end adapted for connection to a breathing assistance apparatus and in use accepting exhalatory gases therefrom, and said distal end submerged in said body of liquid,  
such that in use the mean pressure of said inhalatory gases supplied to a patient is adjusted by the level to which said distal end is submerged in said body of water.

2. A pressure regulating device as claimed in claim 1, further comprising a connection means attached to said container and engaging said terminal conduit means, whereby in use said terminal conduit means may be adjusted in axial position in predetermined increments, with respect to said connection means.

3. A pressure regulating device as claimed in claim 2 wherein said terminal conduit means includes at least one partial groove and said connection means includes at least one matching partial resilient ridge or toggle.

20 4. A pressure regulating device as claimed in either of claims 2 or 3 wherein said predetermined increments are one half centimetre each.

25 5. A pressure regulating device as claimed in claims 1 or 2 further comprising overflow means for regulating the level of said body of liquid with respect to said container to a substantially constant level.

30 6. A pressure regulating device as claimed in claim 5 wherein said overflow means also includes damping means for filtering any perturbations in said level of said body of liquid, such that in use said overflow means regulates the "mean" level of said body of liquid.

7. A pressure regulating device as claimed in claim 6 wherein said damping means comprises an outlet from said container which is located at a position which in use is substantially below the level of said body of liquid, and means for reducing the pressure waves

at said outlet produced in use in said body of liquid by patient's exhalations flowing therethrough located at a position which in use is between the level of said body of liquid and said outlet.

5 8. A pressure regulating device as claimed in any one of claims 5 to 7 wherein said overflow means further includes a removable container, whereby in use the overflow from said body of liquid flows into said removable container.

10 9. A pressure regulating device as claimed in claim 8 wherein said body of liquid is substantially composed of water.

10. A pressure regulating device as claimed in claim 9 wherein said device is constructed substantially from clear plastic materials.

11. A breathing assistance apparatus for supplying gases to a patient to assist said patient's breathing including gases supply means adapted to supply gases to said patient, delivery means including a plurality of ports adapted to deliver said flow of gases to said patient, inhalatory gases transport means for conveying said flow of gases from said gases supply means to said delivery means, exhalatory gases transport means for conveying said patient exhalations from said delivery means, and a pressure regulating device disposed within or in fluid communication with said exhalatory gases transport means, wherein said pressure regulating device comprises a pressure regulating device as claimed in any one of claims 1 to 10.

25 12. A breathing assistance apparatus as claimed in claim 11 further comprising humidification means for humidifying said gases prior to delivery to said patient, disposed within or in fluid communication with said inhalatory gases transport means.

30 13. A pressure regulating device for use with a breathing assistance apparatus which conveys inhalatory gases to, and removes exhalatory gases from a patient requiring breathing assistance, comprising:

a container which in use includes a body of liquid, and  
terminal conduit means including proximate and distal ends, said proximate end adapted for connection to breathing assistance apparatus and accepting exhalatory gases therefrom, and said distal end submerged in said body of liquid,

such that in use [redacted] resultant bubbling occurring in said body of liquid produces relatively small controlled perturbations in the pressure of inhalatory gases supplied to a patient.

09656551-090600